



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,551	07/21/2003	Silvio Cucchi	Q76624	3918

23373 7590 09/28/2005
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

BAKER, STEPHEN M

ART UNIT PAPER NUMBER

2133

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,551

Applicant(s)

CUCCHI ET AL.

Examiner

Stephen M. Baker

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>072103</u> . | 6) <input type="checkbox"/> Other: _____ |

RD

DETAILED ACTION

Drawings

1. The drawings are objected to because element 20 in Fig. 5 apparently should be shown as a switch instead of an XOR gate, unless further means are provided to insert zero-value symbols in the positions of parity symbols before the parity symbols are "added."
2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because “interleaving the frame of information symbols and redundancy symbols by carrying out permutation of the elements of the columns, the horizontal sequences, or rows, of information symbols and redundancy symbols of the permuted columns are identified as second code words” is poorly worded and apparently should be “interleaving the frame of information symbols and redundancy symbols, using permutation of the elements within the columns, the rows of information symbols and redundancy symbols produced from the permuted columns form second code words” or the like. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities:

On page 2: in lines 16-17, “(overlapping of the effects applies)” apparently should be deleted for being a poorly-written and unnecessary reiteration of the property of linearity already described in lines 6-7; in line 21: “creation of the rectangular interleaver (since the code words are the rows and the columns of the structure, in order to pass from one code to another code the interleaver writes by rows and reads by columns and *vice versa*)” apparently should be “limitations of the rectangular interleaver (in which the code words are the rows and the columns of the structure, thus in order to pass from one code to another code the rectangular interleaver writes by rows and reads by columns and *vice versa*)” or the like.

On page 3: in line 13, “each parity is self-protected” apparently should be “each parity is protected”; in lines 20-21, “the interleaver is obtained by carrying out

permutation within columns" apparently should be "an interleaving is obtained by carrying out permutation within columns of a rectangular array" or the like.

On page 4: in line 1, "generalised" apparently should be "generalized"; lines 3-6 apparently should be deleted for being inconsistent with US application format; in line 15, "will certainly" apparently should be "should"; in line 19, "with protection" apparently should be "with protection of the redundancies".

On page 5: in lines 4-5: "(redundancy A with interleaver A is protected by redundancy B and redundancy B with interleaver B is protected by redundancy A)" apparently should be "(interleaved redundancy A is protected by redundancy B and interleaved redundancy B is protected by redundancy A)"; in lines 7-8, "one rotation is carried out on the data and one rotation on the redundancy symbols" is unclear and apparently should be "rotation by one within each column is carried out on the data and redundancy symbols".

On page 6: in line 1, "creation of the rectangular interleaver" apparently should be "limitations of" the rectangular interleaver"; in lines 3-4, "in spite of these constraints, an effective supercode is in any case often not obtained" apparently should be "because of these constraints, an effective supercode is often not obtained" or the like; in lines 7-8, "a PVC with the bottom right-hand corner for carrying out the cross-check missing" is poorly-worded and apparently should be "a PVC missing the bottom right-hand corner which carries the cross-check parities"; in line 10, "'Check on Check'" apparently should be "'Check on Check' parity symbols"; in line 20, "the fragility of the code is partly solved" apparently should be "the rigid code length requirement is partly solved"; in line

21, "(the only)" apparently should be "(only the)"; in line 22, "interleaving by columns, parity B is calculated" apparently should be "interleaving of parity A by columns, parity B is calculated".

On page 8: in lines 3-4, "permutation within the single columns" is apparently not idiomatic English and apparently should be "permutation within each of the columns"; in lines 4-5, "each single column" apparently should be "each column individually"; in line 6, "within the single columns" apparently should be "within each of the columns".

On page 8: in lines 16-17 and line 20, "permutation between columns" apparently should be "permutation of columns"; in lines 18-19, "depending on the column in which the parity symbols are situated, a corresponding rotation is carried out" apparently should be "depending on the original positions of a parity column when the parity symbols are generated, a corresponding rotation within the parity column is carried out"; in line 22, "It is obvious that the data block" apparently should be "The data block"; in lines 23-24, "the same data block is read in a different manner by code words" is unclear.

On page 9: in line 9, "The code words are paths. A path is therefor understood to be a sequence of positions of symbols" is unclear and apparently should be "The code word symbols occupy a sequence of positions herein referred to as a 'path'"; in line 15, "trajectories" apparently should be "path trajectories"; in line 21, "to pass" apparently should be "pass".

On page 10: in line 3, "generalisation" apparently should be "generalization"; in line 4, "If we consider two parities (parity A and parity B), the two parities are

Art Unit: 2133

constructed" apparently should be "The two parities (parity A and parity B) are constructed"; in line 19, "4a, 4b e 4c" apparently should be "4a, 4b and 4c".

On page 11: in line 15, "overlapping of effects" apparently should be "additive property of the code words" or the like.

On page 13: in lines 12+, "adders 20", which is shown as an XOR gate, apparently should be "selectors 20" or the like, as the parity is apparently added to the systematic data by appending the parity to the data, not by XORing the parity with the systematic data.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1: in lines 7-9, "and identifying the horizontal sequences, or rows, of information symbols and redundancy symbols as first code words" apparently should be "the rows of information symbols and redundancy symbols forming first code words"; in lines 11-15, "interleaving the frame of information symbols and redundancy symbols by carrying out permutation of the elements of the columns, the horizontal sequences, or rows, of information symbols and redundancy symbols of the permuted columns are identified as second code words" is poorly worded and apparently should

Art Unit: 2133

be "interleaving the frame of information symbols and redundancy symbols, using permutation of the elements within the columns, the rows of information symbols and redundancy symbols produced from the permuted columns form second code words".

Regarding claims 4 and 5: "permutation between columns" apparently should be "permutation of columns".

In claim 6: "organised" apparently should be "organized".

Regarding claim 7: in lines 8 and 13, "sequence of (n-k) redundancy symbols" apparently should be "sequence of $((n-k)h/2)$ redundancy symbols" to agree with " $((n-k)h)$ redundancy symbols" in line 15 and to agree with the specification at page 12 in lines 16-18 and page 13 in line 1; in line 14, "at least a second sequence" apparently should be "at least the second sequence"; in line 16, "an adder that adds" apparently should be "a selector that combines" or the like.

Regarding claim 10: "that is to say an exchange of one column with another" is apparently unnecessary and thus should be deleted.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,569,051 to Wilkinson (hereafter 'Wilkinson').

Wilkinson discloses encoding data arranged in an (8×32) rectangular array of bits serving as a frame of symbols to be transmitted," with each bit serving as a "symbol" and each column being formed of a data word. Check words C_0 and C_1 comprise "a number $(n-k)$ of columns of redundancy symbols ... having a length (h) equal to the number of rows of the frame of symbols to be transmitted" wherein $(n-k) = 2$ and $h = 8$. Each of the rows of bits in the resultant codeword can be considered to provide a "first code word". If the positions of bits within each of the columns in Wilkinson's (8×34) coded array is permuted, each of the resulting rows of permuted bits can be said to form a "second code word".

Regarding claims 2 and 3, any permutation of the positions of bits within each of the columns in Wilkinson's (8×34) coded array can be said to form a "second code word".

Regarding claim 6, each of Wilkinson's check words C_0 and C_1 serves as a "block of redundancy symbols".

Allowable Subject Matter

9. Claims 4 and 5 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claims 7-10 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

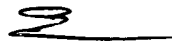
Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Stephen M. Baker
Primary Examiner
Art Unit 2133

smb